

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
17 March 2005 (17.03.2005)

PCT

(10) International Publication Number
WO 2005/023293 A1

(51) International Patent Classification⁷: **A61K 39/00**

(21) International Application Number:
PCT/KR2004/002306

(22) International Filing Date:
9 September 2004 (09.09.2004)

(25) Filing Language: Korean

(26) Publication Language: English

(30) Priority Data:
10-2003-0063343
9 September 2003 (09.09.2003) KR

(71) Applicants (for all designated States except US):
POHANG UNIVERSITY OF SCIENCE AND TECHNOLOGY [KR/KR]; San 31, Hyoja-dong, Nam-gu, Pohang-si, Gyeongsangbuk-do 790-784 (KR). **GENEXINE CO., LTD.** [KR/KR]; #1403, Miwon B/D, Yeouido-dong 43, Yeongdeungpo-gu, Seoul 150-010 (KR). **PROGEN CO., LTD.** [KR/KR]; Sanggal-ri 47-5, Giheung-eup, Yongin-si, Gyeonggi-do 449-905 (KR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **SUNG, Young Chul** [KR/KR]; #101-601, Hyundai-idong Town, Daejam-dong,

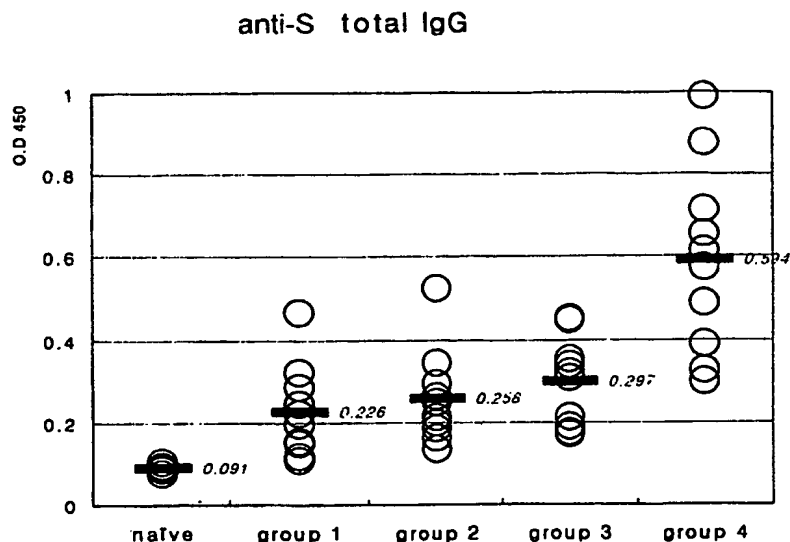
Nam-gu, Pohang-si, Gyeongsangbuk-do 790-310 (KR). **PARK, Su Hyung** [KR/KR]; #6-1101, Shindonga Apt., Myeongil 2-dong 44, Gangdong-gu, Seoul 134-825 (KR). **CHANG, Jun** [KR/KR]; #6-904, Gyosu Apt., Jigok-dong 755, Nam-gu, Pohang-si, Gyeongsangbuk-do 790-751 (KR). **SON, Jong Moon** [KR/KR]; #26-1403, Donga Apt., Bupyeong-dong, Bupyeong-gu, Incheon 403-010 (KR). **LEE, Sung Hee** [KR/KR]; #101-306, Hyundai Apt., Bongcheon 11-dong 179-58, Gwanak-gu, Seoul 151-815 (KR). **KIM, Won Bae** [KR/KR]; #A-1801, Daelim Acrovill, Dogok-dong 476-6, Gangnam-gu, Seoul 135-270 (KR). **KIM, Byong Moon** [KR/KR]; #Dadong-401, Dongsin Apt., Dogok-dong 902-8, Gangnam-gu, Seoul 135-270 (KR).

(74) Agent: **SON, Min**; 19th Floor, City Air Tower, Samsung-dong 159-9, Kangnam-gu, Seoul 135-973 (KR).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: VACCINE COMPOSITION COMPRISING IL-12 ADJUVANT ENCAPSULATED IN CONTROLLED-RELEASE MICROSPHERE



(57) Abstract: Disclosed is a vaccine composition including a pathogenic antigen and IL-12 encapsulated in controlled release microspheres. Also, the present invention discloses a method of enhancing the adjuvant effect of IL-12 by employing an IL-12 adjuvant encapsulated in controlled release microspheres. IL-12, used as an adjuvant for a co-administered vaccine antigen in the vaccine composition, is released in vivo for a prolonged period of time by being encapsulated in controlled release microspheres, thereby maximizing its adjuvant effect.



(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— *with international search report*